

## CLAIMS

What is claimed is:

1        1.    A system for reserving a virtual connection from a  
2        source workstation to a destination workstation wherein  
3        packets of data are transmitted over an network between  
4        an ingress node os said source workstation and an egress  
5        node of said destination workstation, said system  
6        comprising:

7                a reservation server accessible by said source  
8        workstation including connection setup means for setting  
9        up a virtual connection meeting a predefined Quality of  
10       Service (QoS) requirement from said ingress node to said  
11       egress node in response to a request from said source  
12       workstation.

13               2.    The system according to claim 1, wherein said  
14       reservation server includes a user database for storing  
15       the identification of each user allowed to access said  
16       reservation server.

17               3.    The system according to claim 2, wherein said user  
18       database further stores the rights of each user allowed  
19       to access said reservation server.

20               4.    The system according to claim 1, wherein said  
21       reservation server further includes a network database  
22       for storing the information describing a network capacity  
23       required to set up said virtual connection.

1        5.    The system according to claim 1, wherein said source  
2        workstation includes a user FlowID database for storing  
3        at least one FlowID, wherein said at least one FlowID  
4        identifies at least one the flow transmitted from said  
5        source workstation.

1        6.    The system according to claim 1, wherein said  
2        ingress node includes an edge FlowID database for storing  
3        at least one FlowID for flows that have been reserved by  
4        said reservation server.

1        7.    The system according to claim 1, wherein said  
2        ingress node includes a port forwarding database for  
3        storing information required by said ingress node when  
4        receiving a first packet of a flow that has been reserved  
5        by said reservation server.

1        8.    A method for reserving a virtual connection from a  
2        source workstation to a destination workstation wherein  
3        packets of data are transmitted over a network between an  
4        ingress node of said source workstation and an egress  
5        node of said destination workstation, said method  
6        comprising:

7                sending a reservation request from said source  
8        workstation to a reservation server;

9                verifying that said request may be validated in view  
10       of user information within said source workstation,  
11       wherein said user information is accessible by said  
12       reservation server;

13                verifying that the capacity of said network is  
14       sufficient to meet the requirements of said reservation  
15       request; and

16                in response to the capacity of said network being  
17       sufficient to meet the requirements of said reservation  
18       request, establishing a virtual connection from said  
19       ingress node to said egress node.

1        9.    The method according to claim 8, wherein said step  
2        of verifying that said request may be validated further  
3        comprises:

4                verifying the authentication of said user; and

5                verifying the user rights to obtain said virtual  
6       connection.

10. The method according to claim 8, further comprising in response to insufficient capacity of said IP network with respect to a previous reservation request, delivering a new reservation request from said source workstation to said reservation server, wherein said new reservation request includes new parameters that are set in accordance with the capacity of said network as reported from said reservation server to said source workstation.

11. The method according to claim 8, further comprising delivering from said reservation server to said ingress and egress nodes, information required to set up a virtual connection from said ingress node to said egress node and a flow identification of the communication to be established such that said ingress node may transmit any packet received from said source workstation over said connection.

12. The method according to claim 11, wherein the information sent by said reservation server to said ingress and egress nodes to set up a virtual connection includes a FlowID identifying the flow corresponding to the communication to be established over said virtual connection.

13. The method according to claim 12, further comprising comparing a FlowID of a new packet received by said ingress node with at least one FlowID corresponding to at least one reserved virtual connection that has been

5 established from said reservation server to said ingress  
6 node.

1 14. The method according to claim 12, further comprising  
2 delivering a RouteID from said reservation server to said  
3 ingress and egress nodes, wherein said RouteID identifies  
4 a route already known by said nodes.

1 15. The method according to claim 11, wherein the header  
2 of all packets belonging to the flow using said virtual  
3 connection includes a source address, a destination  
address, a port number, and a Quality of Service  
4 identifier.